

4Ts game



Description of collaborative techniques

1. Introduction

This document contains the description of a set of collaborative learning techniques. The description is based on the 4Ts model, that sees the design of collaborative activities as a decision making process involving, mainly, 4 variables: the task to be carried out, the time allotted for that task, the dimension and composition of the Teams and the technology necessary for to carry out the task. The 4Ts game too will refer to these techniques.

2. Techniques

In the following, we use the term “technique” to refer to patterns or schemes that can be used to design and scaffold students’ collaboration while teaching any type of content. They can therefore be applied to the teaching of maths, physics, history, literature, geography, foreign languages, music, etc. Techniques usually entail different phases of work, each described by defining the task, time, technology and teams. So, in the following, the techniques are described by explaining, phase by phase, what the students should do (Task), how long for (Time), with what technology (Technology) with what kinds of groups (Teams). Needless to say, techniques should not be intended as rigid “cages” for designing collaborative activities. Rather, in teaching practice, teachers can adapt these techniques to their needs and also create new ones.

2.1 Jigsaw

This technique entails two phases with different student groupings: a first phase where so called “expert” groups are formed and a second phase carried out by “jigsaw groups”. During the first phase, the Task of the expert groups will be to study in depth a different aspect or facet of a given general topic (or case or problem) and produce a synthesis or a presentation concerning that aspect. In the second phase, each jigsaw group should include at least one member for each of the expert groups. The task of the jigsaw groups will be to produce an artefact (e.g. a written or oral presentation), reflecting all the different facets of the problem studied in the first

phase by the expert groups. Thus, each expert of the jigsaw will bring to the group the competence acquired in the first phase and his/her contribution will be essential to produce a comprehensive artefact.

This method lend itself very well to deal with topics that can be studied under different facets or subtopics. For example, if the class is studying living cells, in the first phase the teacher can divide the class in expert groups, each tasked to study one sub-topic: one group of students learns about the nucleus, another learns about the mitochondria, another learns about the cell wall, and so on. The groups are then reconfigured into jigsaw groups; where each child is an expert of the sub-topic studied in the first phase and thus contributes to the jigsaw group work by bringing the knowledge of that sub-topic, so that the final artefact reflects the whole topic, that is, in our example, the living cell (from <https://www.teachervision.com/group-work/jigsaw-groups-for-cooperative-learning>). The jigsaw is also frequently used in geography and history, to analyse a war in terms of its different facets (causes, effects, main event, people involved, etc) or a place (territory, economy, agriculture, culture, etc). Putting together the expert knowledge in the final artefact allows the student to gain a global view of the whole subject.

Below you can find an example of a Jigsaw organized in class.

WEEK 1		WEEK 2		WEEK 3		WEEK 4	
TECHNIQUE JIGSAW - PHASE I (EXPERT GROUPS) 22				TECHNIQUE JIGSAW - PHASE II (JIGSAW GROUPS) 27			
TASK STUDYING 114	TEAM INDIVIDUAL LEARNERS 24	TASK PREPARING A PRESENTATION 130	TEAM SMALL GROUPS 54	TASK WRITING A TEXT 32	TEAM SMALL GROUPS 55		
TECHNOLOGY SELECTED STUDY MATERIALS 90		TECHNOLOGY NO COMMUNICATION TECHNOLOGY 106	TECHNOLOGY PRESENTATION SOFTWARE 74	TECHNOLOGY NO COMMUNICATION TECHNOLOGY 108	TECHNOLOGY TEXT EDITOR 98		
		TASK PRESENTING WORK 138	TEAM PLENARY 70	TASK PRESENTING WORK 139	TEAM PLENARY 71		
		TECHNOLOGY NO COMMUNICATION TECHNOLOGY 107	TECHNOLOGY PROJECTOR 102	TECHNOLOGY NO COMMUNICATION TECHNOLOGY 109	TECHNOLOGY PROJECTOR 103		

2.2 Peer review

This technique usually involves three phases; in the first phase the students produce an artefact (e.g. a document, a map, an oral presentation); in the second students are asked to provide feedback on the artefact produced by someone else in the first phase, in the third and last phase students modify their original artefact based on the feedback received. The peer review is based on “reciprocal teaching” principles, according to which it is essential that students compare the product of their work to that of their peers. The reflection triggered by the comparison (during the second phase) has positive impact on self-assessment skills, especially when a rubric is provided, in the form of a list of criteria informing the feedback. Learning is therefore the compound outcome of the self-assessment engendered by both the feedback received and the feedback given. With this technique, there is a wide range of choices concerning team arrangements: students can work individually, in dyads or in teams in all the phases, or even work in teams in the first phase and then provide individual feedback to one or more of the teams and then come back to the original teams in the last phase. Crinon (2012), reports an example of peer review carried out with primary school students aged 9 to 11. The students were required throughout the year to write several episodes of an adventure novel, which they then exchanged via email with another group of students, provided reciprocal feedback so that the authors could revise their work in the last phase.

Below you can find an example of a Peer Review organized for small groups.

WEEK 1		WEEK 2		WEEK 3		WEEK 4	
TECHNIQUE PEER REVIEW - PHASE I 38				TECHNIQUE PEER REVIEW - PHASE II 38		TECHNIQUE PEER REVIEW - PHASE III 40	
TASK STUDYING 114	TEAM INDIVIDUAL LEARNERS 24	TASK PRODUCING AN ARTEFACT 154	TEAM SMALL GROUPS 54	TASK COMMENTING ON SOMEONE ELSE'S WORK 126	TEAM SMALL GROUPS 55	TASK PRODUCING AN ARTEFACT 155	TEAM SMALL GROUPS 56
TECHNOLOGY SELECTED STUDY MATERIALS 90		TECHNOLOGY MATERIALS AND TOOLS FOR PRACTICE 110	TECHNOLOGY NO COMMUNICATION TECHNOLOGY 106	TECHNOLOGY TEXT EDITOR 98		TECHNOLOGY MATERIALS AND TOOLS FOR PRACTICE 111	TECHNOLOGY NO COMMUNICATION TECHNOLOGY 107
						TASK PRESENTING WORK 138	TEAM PLENARY 70
						TECHNOLOGY NO COMMUNICATION TECHNOLOGY 108	TECHNOLOGY PROJECTOR 102

2.3 Role Play

With this technique, participants “play a role”, i.e., they put themselves in the shoes of someone else (whose perspective on the content may be different from their own) so that they better appreciate their point of view. There are two phases to this technique: the first phase entails role uptake and study of materials (keeping an eye on the role taken), the second entails producing a common artefact by negotiating with peers its content from the perspective previously assumed. This technique can be useful, for example, for language learning: students are assigned a role, given materials to study and a problem to solve (e.g. finding their way in a foreign city). Simulating interactions with local people, students practice the use of the language in context and acquire relevant terminology (see for example Kasim, 2015). The Role Play technique is also frequently used in WebQuests¹, an inquiry-oriented lesson format in which most or all the information that learners work with are web based.

Below you can find an example of a Role Play organized online (in a mixed mode, i.e. asynchronously and synchronously).

¹ <https://en.wikipedia.org/wiki/WebQuest>

WEEK 1		WEEK 2		WEEK 3		WEEK 4	
TECHNIQUE ROLE PLAY - PHASE I 52		TECHNIQUE ROLE PLAY - PHASE II 58					
TASK ASSUMING ROLES 150	TEAM SMALL GROUPS 54	TASK PREPARING A PRESENTATION 130	TEAM SMALL GROUPS 55				
TECHNOLOGY VIDEOCONFERENCING SYSTEM 86		TECHNOLOGY PRESENTATION SOFTWARE 74	TECHNOLOGY FORUM 28				
TASK STUDYING 114	TEAM INDIVIDUAL LEARNERS 24	TASK PRESENTING WORK 138	TEAM PLENARY 70				
TECHNOLOGY SELECTED STUDY MATERIALS 90		TECHNOLOGY VIDEOCONFERENCING SYSTEM 87					

2.4 Pyramid

This technique usually has at least three phases and it is used when there is a need for convergence of a large group on a shared solution for a wicked problem, i.e. one that does not have only one right solution. In the first phase, each student devises a solution to the problem. In the second phase, dyads or groups of three work together by comparing the individual solutions and working out a better one by negotiating between the individual solutions. In the subsequent phases, groups merge and participants build new “shared” solutions based on those elaborated during the previous phase, until the whole cohort of students produces a single solution progressively built on top of the pre-existing ones. For example, if you want your students to prepare an interview for an expert or a privileged witness, in the first phase you can ask learners to study individually some materials and then prepare a draft containing a list of questions to be asked. In the second phase students in dyads or small groups will have the task to share their lists, merge and re-organize them and produce a new comprehensive list. In the third phase students will be organized in progressively larger groups and merge the lists produced by the previous teams. The final phase will be when the whole cohort has to produce a list agreed upon by all participants. In some variants, the list is provided at the beginning and the task is to order the list items according to some given priority criteria.

Below you can find an example of a Pyramid organized online in asynchronous mode.

WEEK 1		WEEK 2		WEEK 3		WEEK 4	
TECHNIQUE PYRAMID (FOR PROBLEM SOLVING) - PHASE I 45				TECHNIQUE PYRAMID (FOR PROBLEM SOLVING) - PHASE II 46		TECHNIQUE PYRAMID (FOR PROBLEM SOLVING) - PHASE III 47	
TASK STUDYING 114	TEAM INDIVIDUAL LEARNERS 24	TASK SOLVING A PROBLEM 142	TEAM PAIRS 58	TASK SOLVING A PROBLEM 143	TEAM SMALL GROUPS 54	TASK SOLVING A PROBLEM 144	TEAM PLENARY 70
TECHNOLOGY SELECTED STUDY MATERIALS 90			TECHNOLOGY FORUM 29	TECHNOLOGY FORUM 28		TECHNOLOGY FORUM 30	

2.5 Discussion²

This technique has a low degree of structuredness, and can thus be enacted in many different ways. Here, we propose to make sure that discussion is grounded on knowledge of the topic and that it is not open ended, but oriented to produce an artefact, because this is considered an important factor to facilitate interactions. In this view, we can distinguish two main phases: in the first phase students are asked to study learning material concerning a given problem (or case or topic) assigned by the tutor, while in the second they work in groups to negotiate their solution to the problem and produce an artefact reflecting the negotiation results. The discussion technique lends itself to tackling complex problems where critical thinking,

² In this context, we will use the two terms "discussion" and "debate", which, in English, have very similar meanings, to refer to two different concepts. We will use "discussion" to refer to the collaborative technique described in this paper and "debate" to identify one of the possible tasks assigned to the students, that of debating about something. This distinction is useful, precisely, to distinguish when we are referring to the collaborative technique (which will necessarily lead to the production of a shared artefact) and when we are referring to the debate task carried out by the students.

reflection and creativity can to be fostered through peer interactions. For example, if a class is studying a debatable issue, like the responsibilities of the different countries involved in a war or the different positions about euthanasia, in the first phase the teacher can provide to the students some documents explaining the different points of view, in the second phase the task will be to debate and produce a synthesis of the team position, by elaborating a text or a presentation concerning the different facets or shared view about the issue.

Below you can find an example of a Discussion to be held in class.

WEEK 1		WEEK 2		WEEK 3		WEEK 4	
TECHNIQUE DISCUSSION - PHASE I (ALL CASES) 48		TECHNIQUE DISCUSSION (TOWARDS TEXT) - PHASE II 51					
TASK FINDING MATERIALS 118	TEAM INDIVIDUAL LEARNERS 24	TASK WRITING A TEXT 32	TEAM SMALL GROUPS 54				
TECHNOLOGY SOURCE OF MATERIALS FOR LEARNING 94		TECHNOLOGY NO COMMUNICATION TECHNOLOGY 107	TECHNOLOGY TEXT EDITOR 98				
TASK DEBATING 158	TEAM PLENARY 70						
TECHNOLOGY NO COMMUNICATION TECHNOLOGY 106							

2.6 Case study

Case studies in education can be used in many different ways, here we propose a possible structure oriented to support problem solving. In Phase 1 of a Case Study, the teacher presents a topic - typically a problem - and provides learners with material for them to study, containing information needed to solve the problem. Then the learners, in pairs or small groups, are asked to solve that problem and produce a possible solution. In Phase 2, the learners individually examine the different solutions and then debate in plenary the pros and cons of each solution.

Below you can find an example of a Case Study to be carried out online (in a mixed mode, i.e. asynchronously and synchronously).

WEEK 1		WEEK 2		WEEK 3		WEEK 4	
TECHNIQUE CASE STUDY - PHASE I 41				TECHNIQUE CASE STUDY - PHASE II 42			
TASK STUDYING 114	TEAM INDIVIDUAL LEARNERS 24	TASK SOLVING A PROBLEM 142	TEAM SMALL GROUPS 54	TASK STUDYING 115	TEAM INDIVIDUAL LEARNERS 25		
TECHNOLOGY SELECTED STUDY MATERIALS 90		TECHNOLOGY FORUM 28		TECHNOLOGY SELECTED STUDY MATERIALS 91			
				TASK DEBATING 158	TEAM PLENARY 70		
				TECHNOLOGY NO COMMUNICATION TECHNOLOGY 106			

3. References

Crinon, J. (2012) The dynamics of writing and peer review. *Journal of writing research*, 4(2), 121-154. DOI: 10.17239/jowr-2012.04.02.2

Kasim, U. (2015). Implementation of Group Work in the Classroom. *Lingua*, 12(1):97-106

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